II. Current Status of Water Quality Trading Programs

2.1 SUMMARY OF EXISTING PROGRAMS

Two recent reports have done a good job summarizing the current status of water quality trading programs in the United States: World Resources Institute's Water Quality Trading Programs: An International Overview (Selman *et. al.*, 2009) and Forest Trends' State of Watershed Payments (Stanton *et. al.*, 2010). Some of the key facts from those reports are updated and described below.

As of 2011, there were 24 active point-nonpoint trading programs in 16 states across the country shown in Figure 2.1 and listed in Table 2.1. Active means a program design has been completed and received the necessary regulatory approvals needed to conduct trades though not all active programs have completed a water quality trade.

Between 2000 and 2008, over $52 million was transacted in nutrient trading programs in the U.S., $10.8 million of that coming in 2008 (Stanton *et. al.*, 2010). These numbers include both point-point and point-nonpoint trading programs. Most of that transaction volume occurred in a small number of trading programs (e.g. Long Island Sound's point-point trading program). The majority of trading programs to date focus on phosphorus (79% of programs) and nitrogen, with growing trading activity for temperature, and some trades for sediment (e.g. total suspended solids) and ammonia. Generally, U.S.EPA does not support trades of persistent bioaccumulative toxics, like mercury (U.S.EPA, 2007, p.10), but some states are exploring how trading might help reduce both legacy and new sources of these pollutants.

In general, the 24 active trading programs occur under specific NPDES permit language or state water quality trading guidance. Nine states have statewide trading guidance or statute to guide their trading programs, and five states have issued guidance or statute for particular watersheds (Figure 2.1). Of the 24 point-nonpoint source active programs, just over 87% allow nonpoint and third parties as trading participants. About 37% of programs allow other landowners (e.g. properties other than crop farms) to be eligible (Branosky and Selman, 2012).

In order to trade, programs need a way to quantify the water quality improvements made by farmers and other landowners in terms that connect to the NPDES permits held by industrial and municipal wastewater facilities. Many programs use a combination of approaches to calculate credits. Of the active programs, four use a set of standard BMP efficiency rates to estimate pollutant removal. Ten programs use site-specific indicators and models to estimate pollutant removal. Twelve programs use custom calculations, which make assumptions for all agricultural operations in the land area under a program.

Table 2.1 shows active programs currently using four types of market structure – 67% use bilateral trades, 46% use sole source offsets, 21% use an auction platform, and 17% use an exchange.

2.2 WHAT HAVE PROGRAMS TAUGHT US ABOUT WHAT WORKS AND WHAT DOES NOT?

Elements of successful environmental markets, including those for water quality trading programs include factors relating to water quality improvement, economic efficiency, and legitimacy (Freeman and Kolstad, 2006; Stavins, 2006; Tripp and Dudek, 1989). The keys to success are transparency, real pollutant reductions, accountable tracking, sound science, and clear lines of responsibility (U.S.EPA, 2007, p.ix). In addition, for both regulatory and voluntary markets, safeguarding both property rights and privacy are important. To achieve these measures of success, a program needs to have both supply and demand, a way for buyers to connect to sellers without too much cost, and a robust system to verify that conservation practices are performing as promised. Without these, a program can fall victim to some of the common hurdles found in trading. Table 2.2.1 lists and describes some of the most common hurdles and success factors for trading programs.

Figure 2.1. Map of Active Point-Nonpoint Water Quality Trading Programs and State Policies (based on data updated for this Trading Reference)
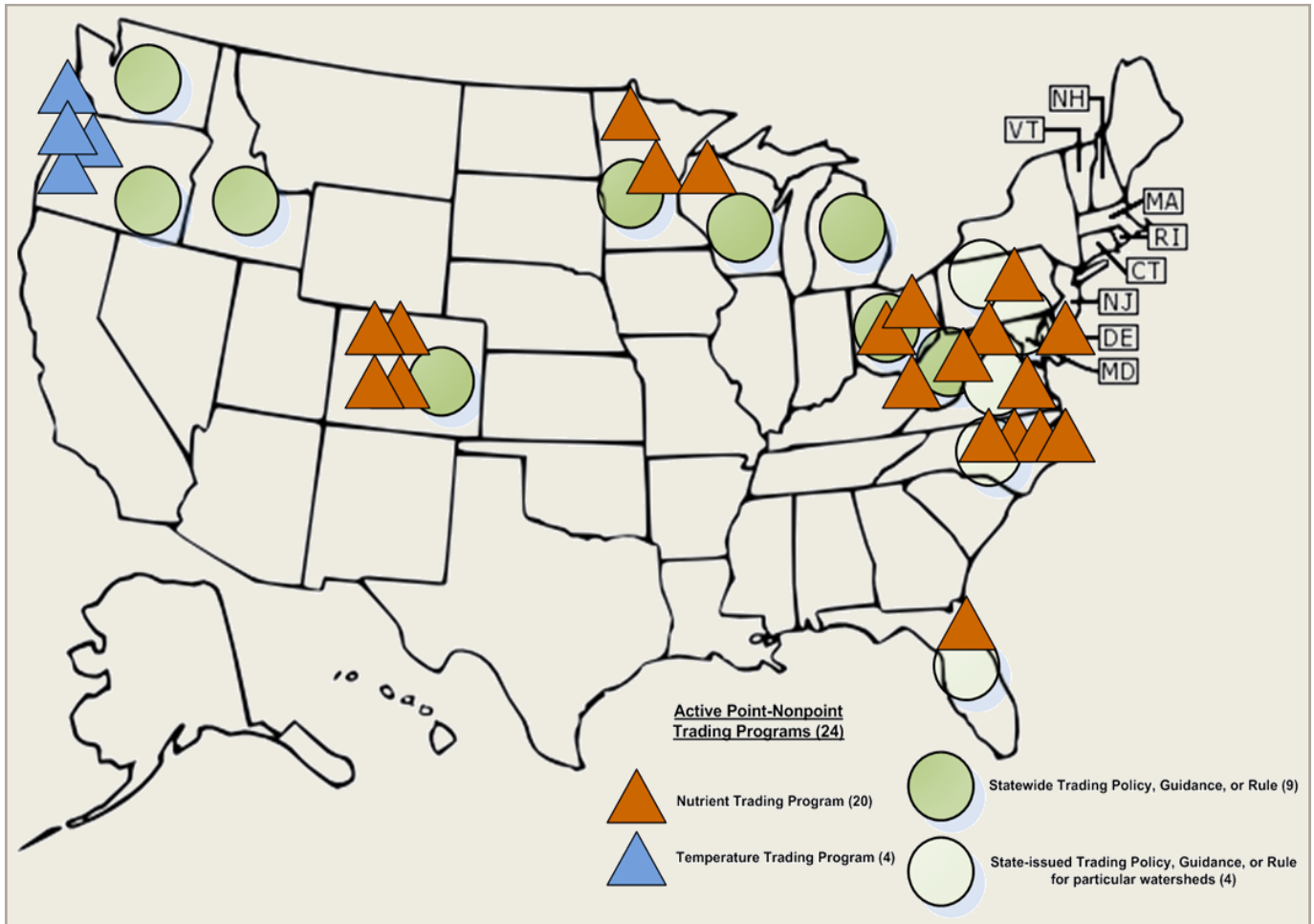
Table 2.1 Active trading Programs in the United States in 2011

Program	State	Market structure
Bear Creek	CO	Bilateral & Brokered trades
Chatfield Reservoir	CO	Bilateral
Cherry Creek Basin	CO	Sole-source offsets
Lake Dillon	CO	Bilateral
Delaware Inland Bays	DE	Bilateral
Lower St. Johns River	FL	Bilateral
MD Chesapeake Bay	MD	Auction & Bilateral
Rahr Malting	MN	Brokered trades
Southern Minnesota Beet Sugar Coop	MN	Bilateral & Sole-source offsets
Falls Lake	NC	Bilateral from private banks & in-lieu fees to the NC Ecosystem Enhancement Program
Neuse River	NC	Bilateral from private banks & in-lieu fees to the NC Ecosystem Enhancement Program
Jordan Lake	NC	Bilateral from private banks & in-lieu fees to the NC Ecosystem Enhancement Program
Tar-Pamlico Estuary	NC	Bilateral from private banks & in-lieu fees to the NC Ecosystem Enhancement Program
Great Miami River	OH	Sole-source offsets
Sugar Creek (Alpine Cheese)	OH	Bilateral & Brokered trades & Exchange
Ohio River Basin Trading Project	OH	Auction
Tualatin River (Clean Water Services)	OR	Sole-source offsets
Rogue River (Willamette Partnership)	OR	Sole-source offsets
Willamette River (Willamette Partnership)	OR	Sole-source offsets
Lower Columbia (Willamette Partnership)	OR	Sole-source offsets
PA Chesapeake Bay	PA	Auction & Bilateral & Brokered trades
VA Chesapeake Bay	VA	Bilateral through the VA Water Quality Improvement Fund or Brokered trades for compliance credits exchanged through the VA Nutrient Credit Exchange Association
Red Cedar River	WI	Bilateral
WV Potomac/Chesapeake Bay	WV	Auction & Bilateral